Amendments to the Specification:

Please replace paragraph **[0024]** with the following rewritten paragraph:

[0024] In accordance with one embodiment of the present invention, the monitoring system 10 may be connected via modular connector 20 to a recorder or data logger 56, as shown in Figure 3. Sensors 12, 22, 26 transmit their respective signals to corresponding amplifiers 44, 46, 48, where the signals may be processed, in analog or digital fashion, and in the presently described embodiment, are amplified and conditioned before being routed to multiplexer 52. Multiplexer 52 then synchronizes transmission of the amplified signals received from the individual pH sensors 12, 22, 26, at predetermined data sample rates to an analog-to-digital (A/D) converter 54, which converts the signals from analog to digital format, and the digital signals are then received by the microprocessor 50 for correlation with timing and user inputs for storage, displays, and transmission to a computer for more detailed data processing, report generating, and long term storage. The microprocessor 50 receives timing and real time (year/month/day/hour/minutes/seconds) signals from a timer circuit 51 and its program from a non-volatile memory 53. It can also receive data input from a user input or keypad 55 or other input device, such device providing input such as the occurrence of pain, eating, lying down, sleeping, belching, and the like, which the microprocessor 50 correlates with time and pH sensor signals from the sensors 12, 22, 26. Such data can be stored in limited quantities for a short time in the microprocessor itself, or additional memory (not shown) can be provided. User control signals are also sent by the keypad 55 to the microprocessor 50. The microprocessor 50 outputs timing or multiplexing clock signals to the multiplexer 52 according to its programming. The microprocessor 50 also sends data signals to a display device (57), which can be a visual display, such as an LED display, sound generator, printer, or any combination of these or other display devices. Another function of the microprocessor 50 is to transmit data to a larger computer processing and storage facility (not shown) via any conventional link, such as an infrared (IR) communications link 58, hard wire interface 59, and the like. Control, initiation, test,

and other signals can also be transmitted to the microprocessor 50 from outside via the IR link 58 and/or interface 59.

Please replace paragraph **[0025]** with the following rewritten paragraph:

[0025] The transmitted data can subsequently be manipulated by a computer (not shown) to create graphs, charts, etc., or perform calculations to obtain various information that is desired by the physician overseeing the subject patient. Figures 5A-5B show a graph of the data obtained from a sample patient "1234" over a continuous 24-hour period, using pH probe apparatus 70, shown in Figure 4, which uses two sensors, rather than three sensors shown in the monitoring system 10. However, the principles are the same. The data transmitted by sensor 22' is illustrated graphically by line 62, while data transmitted by distal sensor 12' is illustrated graphically by line 64. A common time clock 66 is shown along the x-axis, while the y-axes 68, 69 cover pH levels ranging from 0 (highly acidic) to 8 (slightly basic). Along the top margin of the combined graph are shown event markers indicating ~~heartburn~~ pain 72, ~~pain~~ cough 74, and a meal 76, while shaded region 78 in Figure 5b indicates the patient is in a recumbent position. Each event marker is manually input into the recorder 56, e.g. via keypad 55, by the subject patient at the time the specific event occurred. For instance, point 80 on line 64 shows a pH reading approximately equal to 2.0. Since a pH level of 4.0 is considered normal for the region of the esophagus where the distal sensor is located, and the timing does not coincide with a "meal" event flag, this point 80 indicates a reflux episode occurring in the lower esophagus at about 10:55 a.m. Since there is not a corresponding drop in the proximal sensor graph line 62, the refluxate was limited to the distal esophagus and did not reach the proximal esophagus of the sample patient.